

# ECHOVAULT™

## Managed Ethernet Access with SLA measurement and reporting

Broadband Technology Event  
“De Kuip” Rotterdam  
October 10<sup>th</sup> 2009



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## **WHY and HOW SLA**



## Service Level Agreement

### Motivation for agreement:

#### –Customer

- Knows what is the service that he/she is provided with
  - \* ICT-services are abstract commodities
    - » Nothing to touch or hand out
- Knows how to escalate problems

#### –Service provider

- Knows what customer expects from him
- Knows how much traffic there will be in the worst case
- Can optimize revenues
  - \* How much overbooking can be done while extra income overcomes litigations

## Service Level Agreement

### Motivation for measurement:

#### – Customer

- Has paid for service and wants to know whether is receiving the committed service
  - \* Input for the escalation and litigation process
- Needs to know where the problem lies
  - \* LAN / WAN (demarcation)

#### – Provider

- Has made different kinds of agreements with different KPI values
  - \* Needs to know which of the SLAs are broken as a matter of risk assesment (if every customer would litigate)
- Wants to know vital statistics of own infrastructure



## Service Level Agreement

- What to put in to the agreement
  - Problem: Man in the loop
    - \* Human is good probe for qualitative parameters
    - \* Not for quantitative ones
  - Qualitative 'KPI's are subjective
    - \* Different 'black box transfer function' per cycle
      - » If you're relaxed – you tend to be tolerant for service variations
      - » If you're agitated – you tend to be less tolerant

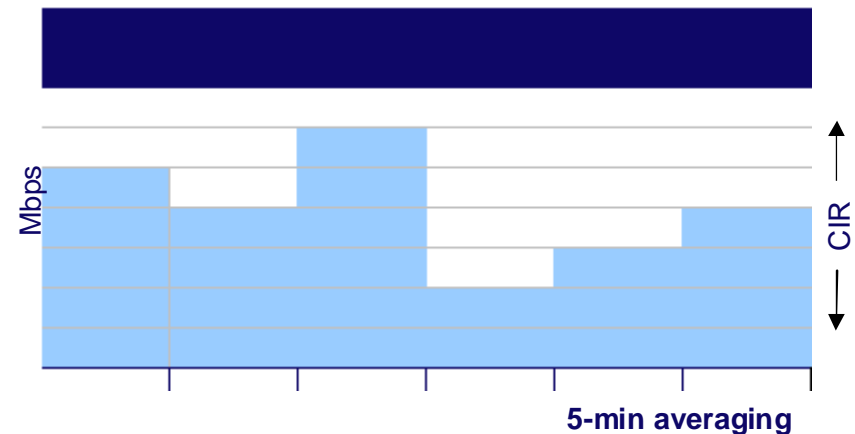
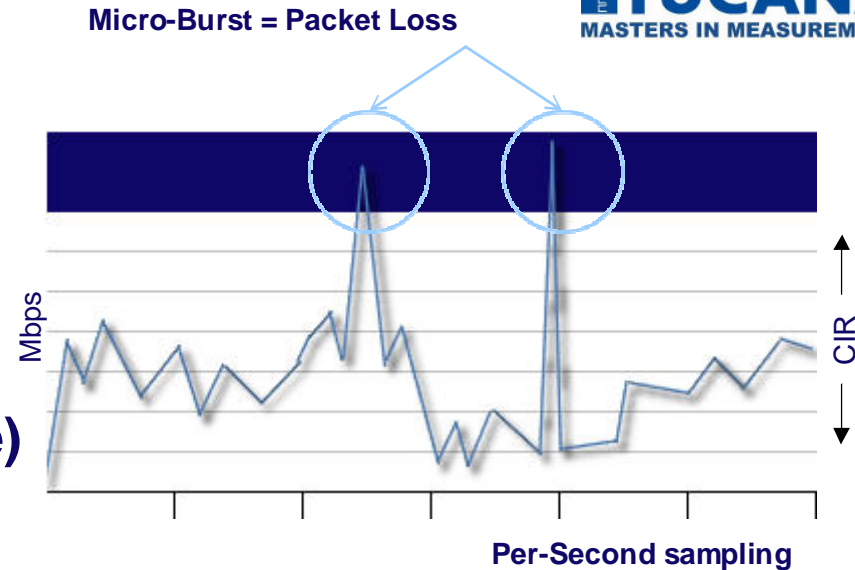
**– SLA KPIs should be quantitative and easy to measure**



## Service Level Agreement

- What are the technology indepent quantitative SLA KPIs
  - E2E delay
  - E2E delay variation
  - E2E packet loss
  - How about bandwidth and capacity ?
  
- Availability is calculated based on KPIs
  - Availability is not a KPI itself
  - Always add Availability calculation method to the SLA agreement

- Bandwidth utilization per second per CoS (e.g. VLAN, DSCP etc.)
- Possibility to recognize micro burst
- 300 times faster than SNMP polling (with 5 minutes polling rate, average)



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- Hints for SLA:
  - Define Key Performance Indicators (KPI):
    - Network: packet loss, jitter, latency (one way, round trip), BW utilization, MTTR
    - Application: above plus TCP/UDP, servers, application? (SAP, email, Citrix etc)
    - Try to keep testing simple, testing build in to the access device
    - Application testing is always expensive.
  - Measure before setup the thresholds and SLA limits!
    - Can you promise 99,999% availability and/or max 5 ms latency if you don't know how your network behave?
    - 99,999% means down time of 315 s/year or 26 s/month and is expensive to achieve **(XX times more than 99,99%!!)**
  - Have ongoing SLA measurements and do network improvements and traffic prioritizing to increase the service levels
  - Keep reporting simple for non-technical people
    - **Green is Good, Red is Bad, Yellow is Warning**
    - Availability in %

Creanord Portal - Summary and Navigation - Windows Internet Explorer

http://192.71.188.90:8080/web/reuters/summary-and-navigation

File Edit View Favorites Tools Help

Google Search

Creanord Portal - Summary and Navigation

Welcome Acme Networks!

**YOUR LOGO**

**ACME**

Home Summary and Navigation Traffic-Meter Dashboard Traffic-Meter - RealTime - Client

IFrame

### Dashboards

Search:

By Spotlight  By Engine

Spotlight	Engines	Analytics Dashboard	Statistics Dashboard	fsr	1h	Service Availability			
						1d(bh)	1d	1w	1m
<a href="#">Broadway-Pr1-AcmeCorp-Edge</a>	Broadway-Pr1-AcmeCorp-Edge-aeds			100	100	100	100	100	100
<a href="#">Broadway-Pr1-AcmeCorp-FirstMile</a>	Broadway-Pr1-AcmeCorp-Edge-aeds			100	100	100	100	100	100
<a href="#">Core-YUL-Spotlight</a>	Yuliya-test-hello			100	100	100	100	100	100

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# MANAGED ETHERNET ACCESS



### 1. Ethernet service creation per CoS\*

\* demarcation device, shaping, policing, filtering, VLAN tagging etc

### 2. E2E Performance and SLA testing per CoS

\* RFC-2544 birth certification, ongoing SLA/Perf. testing

### 3. Automate service delivery

\* Plug and Go

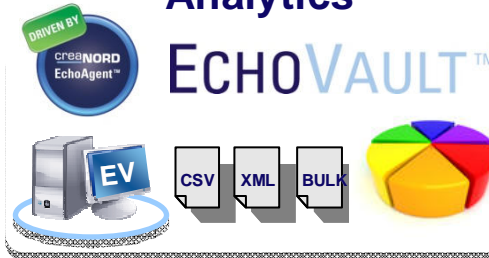
\* centralized KPI collection, reporting and integration to other OSS/BSS systems

\* CoS = Class of Service

### Carrier Ethernet Demarcation Devices



### Creation & Monitoring & Analytics



### Web portal and OSS/BSS integration



The Total Service Creation & Assurance solution™

## Creanord solution increase productivity and offers new services:

- automated Ethernet Access service creation (Plug and Go)
- reduce the truck trolls with ongoing automated SLA and performance testing
- online E2E SLA reporting via portal

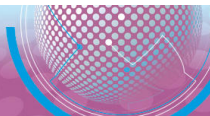
⇒ Better customer support and service quality

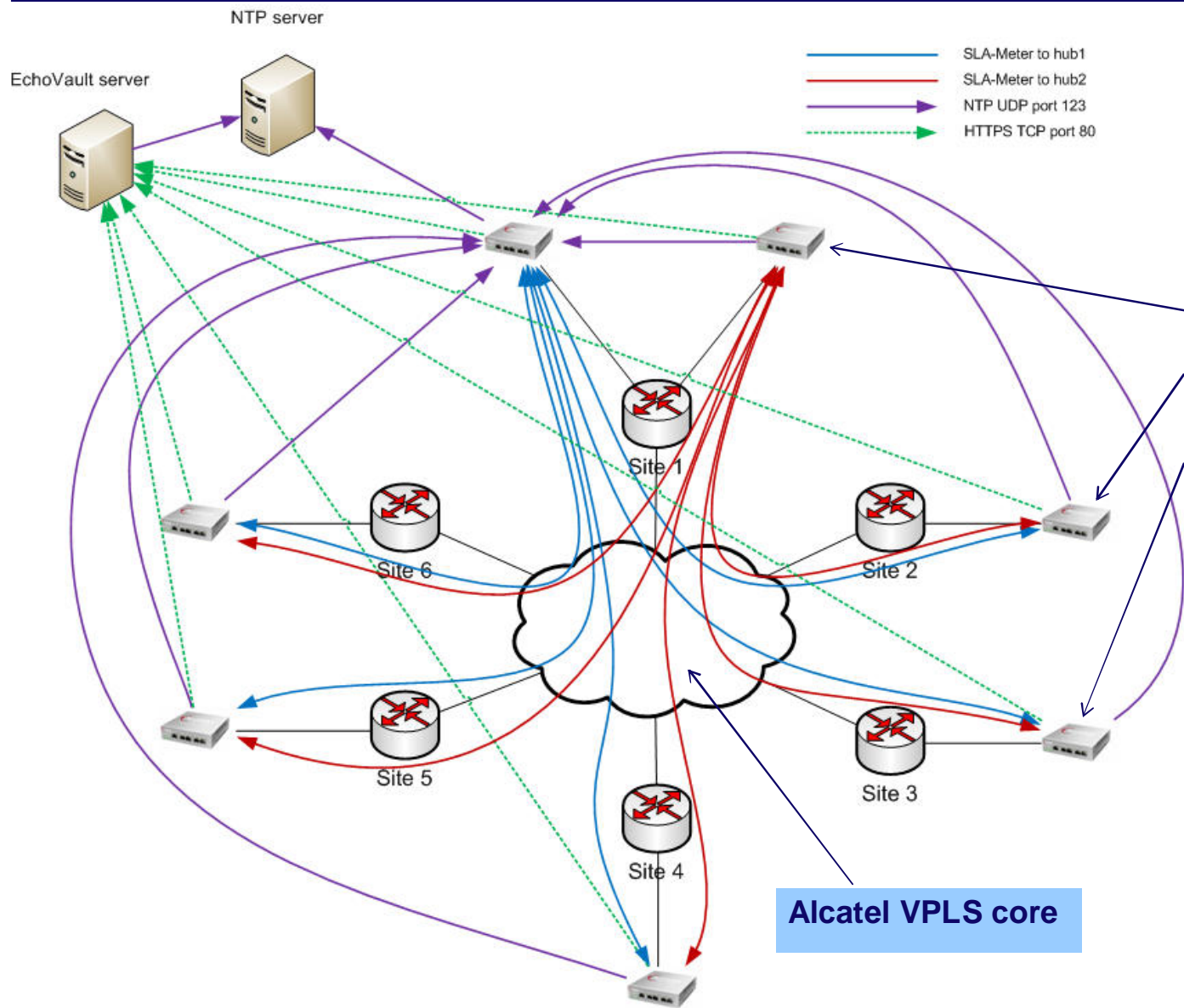
⇒ Reduce Opex, Increase Revenue

⇒ Competitive advantage, Service Differentiation

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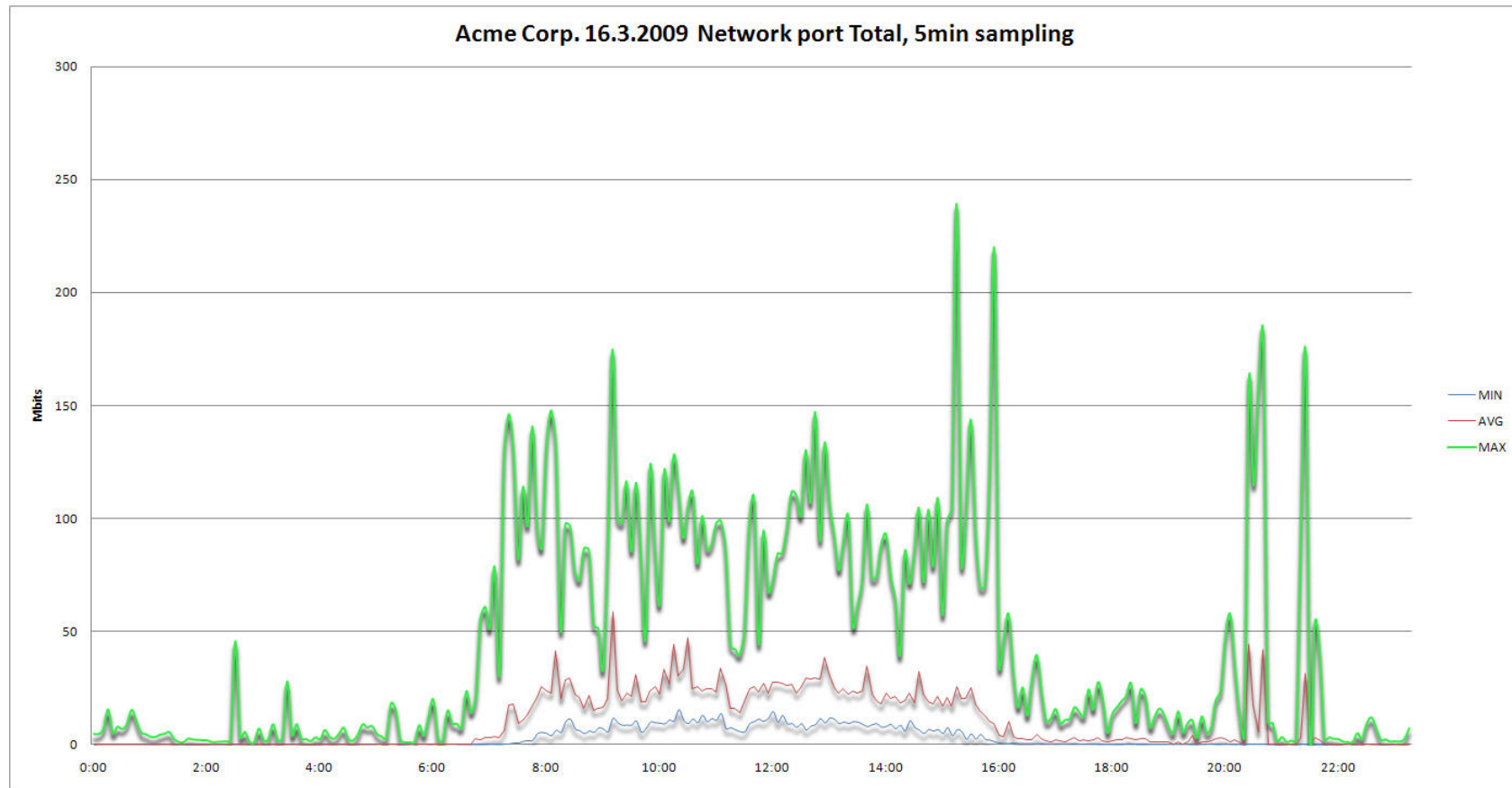
# Customer case: TeliaSonera Finland, L2 Broadway service



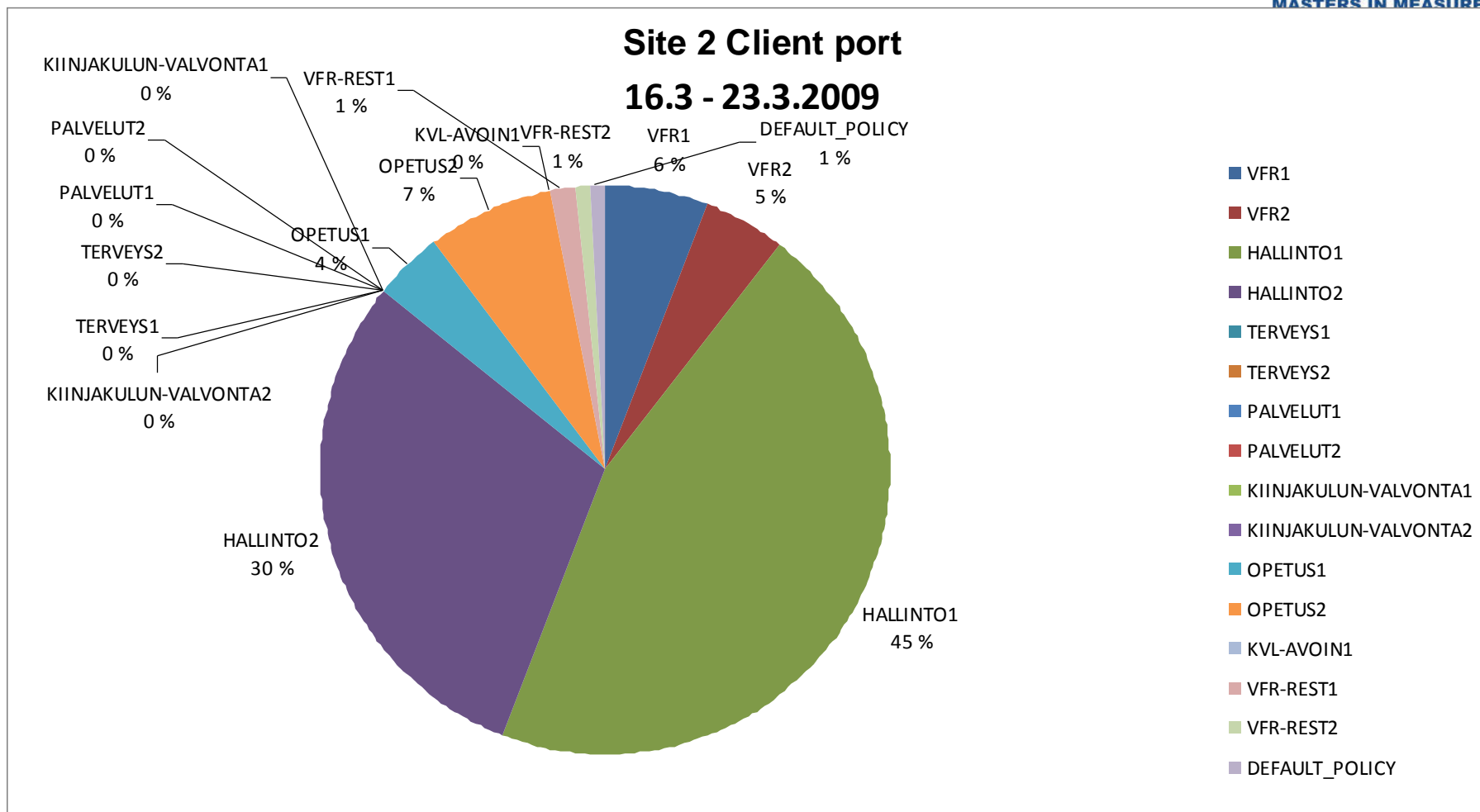


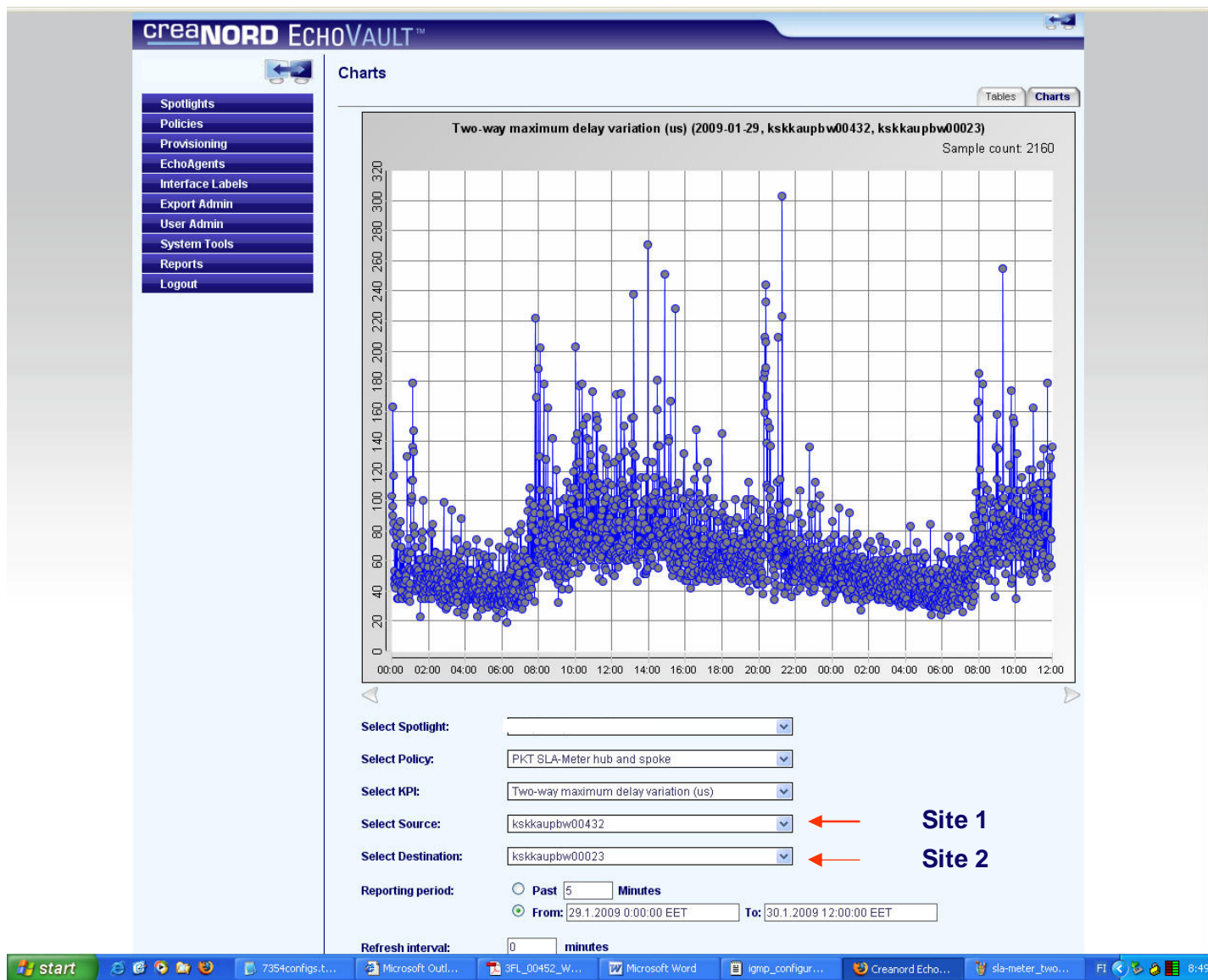
All NID's with rate regulation, QinQ push/pop and hub'n' spoke test topology

Alcatel VPLS core



NOTE: ALL DATA POINTS ARE BASED ON 1 SEC DATA





# Q&A

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